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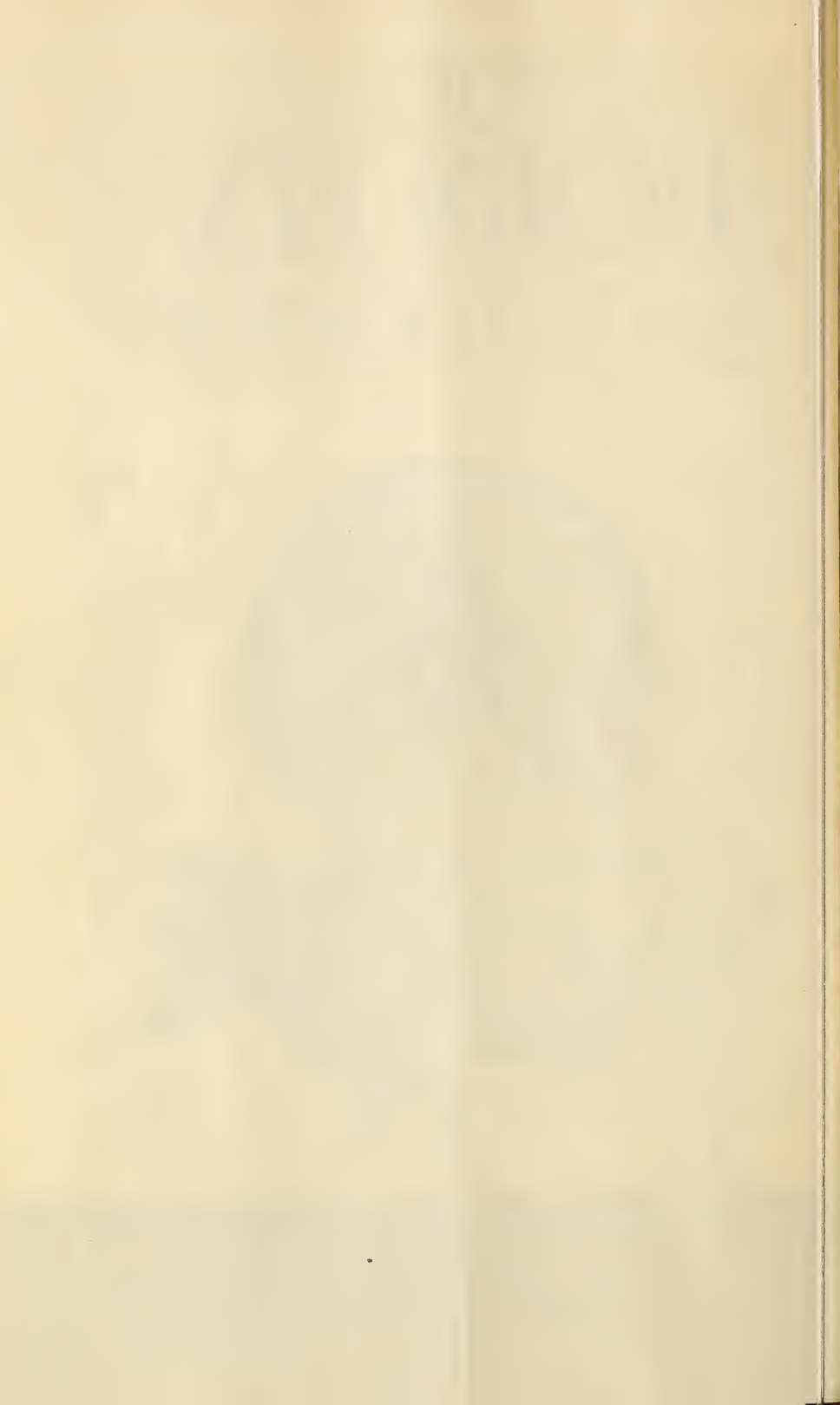


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# The HORN FLY and its Control



Leaflet No. 205  
U. S. DEPARTMENT OF AGRICULTURE



# THE HORN FLY AND ITS CONTROL

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The horn fly (*Haematobia irritans* (L.)) is one of the important insect pests attacking cattle. It occurs throughout the United States and in all the Provinces of Canada, and, during seasons of abundance, it is responsible for a considerable loss to the cattle industry.

Horn fly attack is confined chiefly to cattle. Occasionally the fly will attack goats, horses, mules, and dogs, and, rarely, man. Infestations of 4,000 flies per head are common on cattle in Texas, and frequently as many as 10,000 flies have been observed on one animal.

## Description and Habits of the Horn Fly

The horn fly (fig. 1) is easily recognized. It is a small biting fly about one-half the size of the common housefly. It has a conspicuous



FIGURE 1.—The horn fly, female, as seen from above. Ten times natural size.

pointed beak (proboscis), very similar to that of the larger and more robust stablefly. The horn fly remains on the animal day and night and invariably attains a characteristic position with the head pointed downward, except, of course, when on the under side of the animal. Ordinarily the flies cluster on the shoulders and sides of the animal, but during extremely hot or rainy weather they congregate on the under side of the belly. Horn flies are more numerous on black and other dark-colored cattle than on lighter colored animals. In the resting position the wings are usually spread at an angle of about



60°, but while the fly is feeding the wings are ordinarily closed. The tendency for horn flies to cluster at the base of the horns is noticeable in cool weather and is prompted, apparently, by the warmth of this area.

### Its Common Names

The name "horn fly" is the one commonly used by writers and many stockmen; however, the name causes some misunderstanding, since the fly does not attack the horn. Other common names by which this fly is known include cattle fly, cattle horn fly, buffalo fly, buffalo gnat,<sup>1</sup> stock fly, little stock fly, stockyard fly, cow horn fly, Texas fly, Texas horn fly, and third party fly.

### The Damage It Causes

The damage caused by horn flies is due to the worry of the host, the loss of blood, and the production of sores which are susceptible to screw-worm attack. During the season of horn-fly activity the cattle often refuse to graze during the day but seek protection by hiding in the brush or tall grass until nightfall, when horn flies are less active. Such interruption in the feeding and rest of the host interferes with normal digestion and assimilation, and, together with the waste of energy expended in fighting the flies, results in loss of flesh and reduction in the milk supply. Some investigators claim that during seasons of abundance the horn fly is responsible for a reduction of one-fourth to one-half of the milk production of dairy cattle and a considerable loss of flesh in all classes of cattle. The annoyance of dairy cattle by the fly during milking also leads to contamination of the milk and consequent lowering of its quality.

The sores caused by horn flies present a serious angle of the horn fly problem in the South, where every open wound or sore is a potential screwworm case. These sores are produced directly by the bites of the flies, and also indirectly by the flies and irritation worrying the cattle to such an extent that they injure themselves in fighting the flies by kicking, licking, running through brush, and rubbing against trees, barbwire fences, etc. Just how much loss is due to horn-fly attack it is difficult to estimate, but probably it is not less than \$3,000,000 annually.

### Its Seasonal Activity

The horn flies appear with the first warm days of spring and are present on cattle until fall, when cool weather halts their activities. In central Texas the horn flies usually appear in March and build up a large population during April and May. Then, owing to hot, dry weather, they decrease in numbers until late in August, when late summer rains are conducive to a rapid multiplication. From early in October to November the activity of horn flies is gradually diminished by cool weather.

Warm, damp weather is ideal for the propagation of horn flies, whereas hot, dry weather or low temperatures are unsuitable for their development.

<sup>1</sup> The true buffalo gnats are flies belonging to a different family, the Simuliidae, or black flies; hence the term "buffalo gnat" should not be applied to the horn fly.

### Its Life History

The horn fly lays its eggs on fresh cattle droppings. The female fly alights on the dropping immediately after it is excreted and remains from 1 to 10 minutes and during this time deposits one or more reddish-brown eggs (fig. 2, *A*). The maximum number of eggs found in a female was 24. During warm summer days the eggs hatch in from 16 to 20 hours, and the newly hatched larvae crawl into a crevice or perforation in the dropping and begin feeding. The larval stage lasts approximately 5 days, then the larvae (fig. 2, *B*) pupate in the lower part of the dropping, or, more commonly, in the soil immediately beneath it. Flies emerge 4 or 5 days later and may begin feeding upon

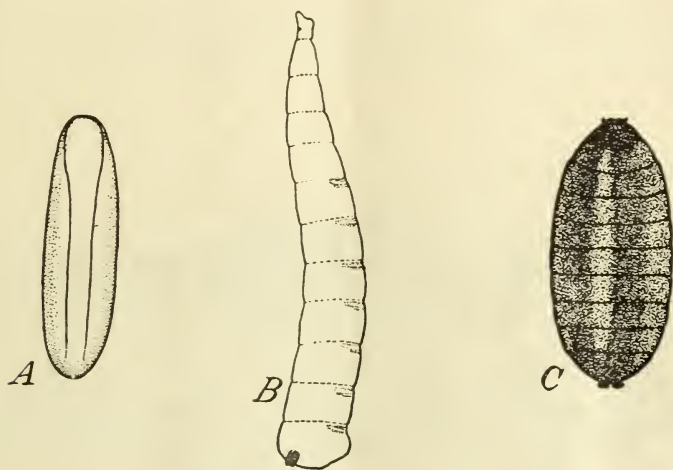


FIGURE 2.—Stages of the horn fly: *A*, Egg; *B*, larva; *C*, pupal case (or puparium); all greatly enlarged. Drawings by E. F. Knippling.

an animal 2 or 3 hours after emergence. Mating has been observed as early as 2 days after emergence and egg laying 1 day later. The entire life cycle (from egg to egg) is 12 to 14 days during the summer. The adult lives approximately 3 weeks. In the colder parts of the country horn flies overwinter as pupae (fig. 2, *C*) and in the extreme South continue to be more or less active throughout the winter.

### Ways of Controlling the Horn Fly

There are a number of ways of controlling horn flies. Naturally, the best method or combination of methods for use on an individual farm or ranch will be determined by consideration of efficiency, practicability, and economy.

#### Spreading of Droppings

One means of horn-fly control is to destroy the larvae in the cattle droppings. This may be accomplished by dragging brush or a spike-toothed harrow over the pasture, thereby breaking up the droppings, or by scattering the droppings by means of a manure fork or shovel. This permits the droppings to dry out quickly and, consequently,

destroys the larvae contained therein. This method is feasible only for small pastures. The accumulations of cattle manure around barns should be hauled to the fields and spread thinly, preferably by a manure spreader, at least three times a week.

### Sprays

Horn flies are easily killed by most of the livestock sprays now in common use. These sprays are ordinarily made by mixing an extract of pyrethrum with kerosene oil. An economical and effective horn-fly spray can be made from any of the oil-pyrethrum concentrates sold by a reliable dealer. Mix according to the directions on the con-



FIGURE 3.—Cattle fly trap in operation on a ranch in Texas.

tainer. A good hand or power sprayer—one that will generate a fine mist or droplet spray—and thorough application are indispensable in effective spraying. By the systematic spraying of a herd the horn fly can be kept in complete control. This method is, obviously, best suited to dairy cows. These sprays are designed to kill rather than to repel the flies.

Mixtures used to repel stableflies have been recommended for repelling horn flies, but they are, for the most part, impractical or undesirable. The repellent action of such materials is of short duration. Furthermore, it is almost impossible to apply repellents to cattle on large ranches, and of course substances that would impart an unpleasant odor to the milk cannot be applied to dairy cattle.

### Traps

A cattle fly trap for the control of horn flies on cattle, which is effective on many farms, dairies, and ranches, has been developed by



the Bureau of Entomology and Plant Quarantine.<sup>2</sup> The trap (fig. 3) is used in a gateway of a fence surrounding the water supply or in a lane or other place where cattle will be compelled to pass through it on their way to and from water, feed, or other frequented place. The cattle soon learn to pass through the trap to free themselves from flies.

### Splashboards on Dipping Vats

Where dipping vats are used for the control of ticks, lice, or other external parasites of cattle, a considerable percentage of the horn flies on the cattle at the time of dipping can be destroyed by installing splashboards along the sides of the dipping vats. Boards about 12 inches wide are placed along the sides of the vat about 4 feet above the surface of the dipping solution and at such an angle to the walls of the vat (about 60° if the walls are vertical) as to cause the solution to break over the backs of the animals as they plunge into it. This catches the flies as they rise from the animal and carries them down into the solution.

### Medication

Some experimental work has been done on the medication of cattle for the control of horn-fly larvae in the droppings. The general idea was to feed the cattle certain chemicals which would pass out in the droppings and render them toxic to the larvae. Some chemicals have proved effective, but those tested thus far are either too expensive or have some undesirable features that make them unfit for general use. The most effective material tested is rotenone, fed daily at the rate of 0.3 gram per 100 pounds of body weight of the animal. Rotenone can be administered by mixing it with the bran or other concentrated feed. Internal medication for the control of horn flies is still in the experimental stage and for the present cannot be recommended.

<sup>2</sup>Specifications for constructing this trap are contained in Bureau of Entomology and Plant Quarantine Circular E-498, A Cattle Fly Trap for the Control of Horn Flies.

